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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/415,673	10/12/1999	HARMUT SCHON	2754/MEINKE	5149

7590 06/27/2002
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EXAMINER

LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/27/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-4

Office Action Summary

Application No.

09/415,673

Applicant(s)

SCHON, HARTMUT

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 1999 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application)
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. FIG. 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "St.d.T." of FIG. 1; "9a", "10a" of FIG. 4; and "9b", "10b" of FIG. 6

The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings.

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:
 - a. Page 4, line 15: -- or tube bundles -- should be inserted after "packets" for consistency in terminology (note page 5, line 1).
5. The abstract of the disclosure is objected to because of the following:

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- a. The abstract is not in the form of a single paragraph.
- b. "Drawing to be published in this context: Fig. 2" (line 16) should be omitted.
- c. The use of legal phraseology is improper. See "comprising" (line 2) and "consisting of" (line 3).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. Correction is required. See MPEP § 608.01(b).

Claim Objections

6. Claims 1, 8, 9 and 16 are objected to because of the following informalities:
 - a. In claim 1, -- an -- should be inserted before "exothermic" (line 4). Likewise, claim 9 (line 5). Furthermore, -- the -- should be inserted before "water" (line 6) and -- distributed--should be inserted before "via" (line 6) for consistency (refer to line 7, "the steam removed via the ring pipe"). Likewise, claim 9 (line 7).

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- b. In claim 8, "claims" should be deleted (line 2). Furthermore, -- in -- should be inserted before "claim 1" (line 2). Furthermore, ",", following "further comprising" (line 2) should be deleted. Furthermore, -- , -- should be inserted after "pipelines" (line 2). Likewise, claim 16.
- c. In claim 9, ";;" (line 7) should be changed to -- and --
- d. In claim 16, ";;" after "further providing" (line 1) should be deleted

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 7. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, it is unclear as to what the applicant is attempting to recite by "mounted as a collector or chamber" (lines 7-8). Also, the examiner suggests changing "collector or chamber" to --distribution or collecting chamber-- for consistency in claim terminology (note claim 2, line 2, for example). Likewise, claim 9 (line 8).

Furthermore, "in particular" (line 5) is considered vague and indefinite. Likewise, claim 9, lines 5-6.

Furthermore, it is unclear as to what is intended by "tube packets come into contact with water via the ring pipe" (lines 6-7) and "the steam removed via the ring pipe" (line 7), and where

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it is disclosed in the specification and drawings. The claim is in contradiction with the disclosure since it appears as if a plurality of ring pipe exist, namely a “ring collector 10” for removal of steam and a “ring distributor 9” for distributing water to the tube packets.

Furthermore, it is unclear as to what the applicant is attempting to recite by “tube packets come into contact with water” (line 6). Also, “the oxychlorination” (line 1), “the fluidized bed” (line 3) and “the reactor wall” (line 8) lack proper positive antecedent basis. Likewise, “the reactor wall”, claim 9 (line 8).

Furthermore, it is unclear as to what the applicant is attempting to recite by “water/steam” (line 5). Likewise, claim 9 (line 6).

With respect to claim 2, “the distribution or collecting chamber” (lines 1-2) lacks proper positive antecedent basis. Likewise, claim 3 (line 2), claim 4 (line 2), claim 10 (lines 1-2), claim 11 (lines 1-2), and claim 12 (lines 1-2).

With respect to claim 4, it is unclear as to what the applicant is attempting to recite by “mounted both internally and externally on the reactor wall” (lines 2-3). Likewise, claim 12.

With respect to claim 5, it is unclear as to the relationship of “the chamber” (line 2) with the “collector [chamber]” and “[distribution] chamber” as set forth in claim 1, line 8. Likewise, claim 6 (line 2) and claim 7 (line 2).

With respect to claim 7, it is unclear as to what the applicant is attempting to recite by “is coordinated with”. Also, “the circular shape” (line 3), “the interior of the reactor” (line 3), “the

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other half” (lines 3-4) and “the exterior of the reactor” (line 4) lack proper positive antecedent basis. Likewise, claim 15 (lines 2-3).

With respect to claim 8, it is unclear as to the structural relationship between “pipelines” and the other elements of the apparatus. Also, “the pipelines” (line 2) and “the various tube packets” (line 4) lack proper positive antecedent basis. Likewise, claim 16 (lines 1-2, 3).

Furthermore, it is unclear as to what is intended by “in the form of throttle holes” (line 3). Likewise, claim 16 (line 2). Also, it is unclear as to the structural relationship between “holes” (lines 2-3) and the other elements of the apparatus. Likewise, claim 16 (lines 1-2).

With respect to claim 9, it is unclear as to what the applicant is attempting to recite by “causing the tube packets to come into contact with water” (line 7). Also, it is unclear as to how “a ring pipe” (line 1), “a ring pipe” (lines 1-2, following “steam”), and “the ring pipe” (line 2, following “wherein”) are related. Also, it is unclear as to which “ring pipe” is implied by “wherein the ring pipe is mounted” (line 8).

With respect to claim 13, it is unclear as to the relationship of “the chamber” (line 1) with the “collector [chamber]” and “[distribution] chamber” as set forth in claim 9, line 7. Likewise, claim 14 (line 1) and claim 15 (line 1).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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8. Claims 1, 2, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Frank (U.S. Patent 3,833,051).

With respect to claims 1 and 9, Frank discloses a fluidized bed reactor (column 1, lines 45-49) comprising: a heat exchanger, including a plurality of tube packets, in the fluidized bed for releasing heat to a heat transfer medium in the tube packets (column 1, lines 50-57); and a ring pipe, wherein the tube packets come into contact with water distributed via the ring pipe (column 1, lines 58-61) and steam removed via the ring pipe (column 1, line 62 to column 2, line 4), wherein the ring pipe is mounted on the reactor wall (column 3, lines 7-11).

With respect to claims 2 and 10, Frank discloses a distribution or collection chamber mounted internally on the reactor wall (Figure 2).

Instant claims 1, 2, 9, and 10 read on the process and apparatus of Frank.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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9. Claims 3, 6, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (U.S. Patent 3,833,051) in view of Nickerson et al. (U.S. 4,117,885).

With respect to claims 3 and 11, the same comments with respect to Frank apply. However, Frank is silent as to the distribution or collecting chamber mounted externally on the reactor wall.

Nickerson et al. teach a distribution (inlet inventory chamber) **23** or collecting chamber (outlet inventory chamber; column 1, lines 16-19) mounted externally on the reactor wall **14** (Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the externally mounted chamber for the chamber of Frank because the externally mounted chamber allows the volume of fluid emptying into the inventory chamber to escape through exit means without impairing the fluid flow rate through the tube work of the vessel, as taught by Nickerson et al.

With respect to claims 6 and 14, the same comments with respect to Frank and Nickerson et al. apply. Furthermore, Nickerson et al. teach a chamber **23** of essentially semi-circular cross-section (Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the semi-circular cross-section to the apparatus of Frank because the semi-circular shape characteristically is able to contain a considerable inventory of working fluid to minimize shortcoming of working fluid in the header arrangement of the heat exchanger, as taught by Nickerson.

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10. Claims 5, 8, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (U.S. Patent 3,833,051) in view of Dienner et al. (U.S. Patent 1,598,062).

With respect to claims 5 and 13, the same comments with respect to Frank apply. However, Frank is silent as to the chamber being essentially rectangular in cross-section.

Dienner et al. teach a chamber of essentially rectangular cross-section (Fig. 1, Fig. 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the chamber of Dienner et al. for chamber of Frank because the rectangular chamber reduces the cost of manufacture by utilizing sheet material instead of tubular stock and facilitates relative proportioning of the volumetric capacity, as taught by Dienner et al.

With respect to claims 8 and 16, the same comments with respect to Frank and Dienner et al. apply. Also, Dienner et al. teach holes for connecting pipelines (column 2, lines 34-37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide holes to the apparatus of Frank because the holes create an entrance to the pipelines to permit insertion of a scaling or cleaning tool, as taught by Dienner et al.

11. Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (U.S. Patent 3,833,051) in view of Pettibone (U.S. Patent 1,848,801).

With respect to claims 4 and 12, the same comments with respect to Frank apply. However, Frank is silent as to the distribution or collecting chamber mounted both internally and externally on the reactor wall.

Pettibone teaches distribution or collecting chambers mounted both internally and externally on the reactor wall (Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the chamber of Pettibone for the chamber of Frank because coordinating the chamber with both the interior and exterior of the reactor mounts the chamber in place, thereby providing easier assembly tube packets to the chamber of the modified apparatus, as taught by Pettibone.

12. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (U.S. Patent 3,833,051) in view of Pettibone (U.S. Patent 1,848,801) and Nickerson et al. (U.S. 4,117,885).

With respect to claim 7 and 15, the same comments with respect to Frank and Pettibone apply. Furthermore, Pettibone teaches chambers (headers) 13, 14 that are essentially circular in cross section (Fig. 2), wherein one half of the circular shape is coordinated with the interior of the reactor (Fig. 2, left half), and the other half with the exterior of the reactor (Fig. 2, right half). However, Pettibone is silent as to motivation for the circular cross section.

The same comments with respect to Nickerson et al. apply. Furthermore, Nickerson et al. teach motivation for the use of a circular cross section (column 1, lines 19-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the circular chambers of Pettibone to the apparatus of Frank because circular shape characteristically is able to contain a considerable inventory of working fluid to minimize shortcoming of working fluid in the header arrangement of the heat exchanger, as taught by Nickerson et al.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Dixit, Lacquement et al., and Walker are provided to illustrate the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is 703-305-4951. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian C. Knode can be reached on 703-308-4311. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

JAL
June 24, 2002



**HIEN TRAN
PRIMARY EXAMINER**